

## ABSTRACT

- A system for programming automation by demonstration where a control program may be created or modified through the process of demonstrating desired behavior using graphical representations (or widgets) of physical, programming, and user interface elements. Widgets have state, or properties, and may also have inherent events associated with them or indirect events that are generated through the demonstration process. The general process of demonstration consists of providing several individual example behaviors. Complete behavior, and thus the resultant code, is generated through inferencing from a number of individual example behaviors. The process of programming automation by demonstration reduces the complexity of the programming task and thereby greatly simplifies the workload of the control programmer, allowing the programmer to concentrate more on the specific automation application at hand rather than on the particulars of the programming language or tools. The invention may be applied to a wide range of automation applications, from home and building automation to industrial automation, and may be practiced by novice and expert-level users.